Cleveland Section

Institute of Pathology, Western Reserve University, December 9, 1932.

6516

Excretion of Bismuth in Series of Clinical Bismuth Treatments.

TORALD SOLLMANN, H. N. COLE AND KATHARINE I. HENDERSON.

From Western Reserve University School of Medicine.

The excretion was studied quantitatively, usually on 3 patients for each compound, with 3 methods of administration: *Single*—one injection; *weekly*—one injection per week for 3 weeks; *multiple*—several (generally 3) injections per week for 3 weeks. In each series, the study was continued through an after-period of 2 weeks, a few patients were studied longer.

Compounds studied and bismuth dosage: (A) Water-soluble in water: Sodium bismuth citrate and sodium bismuth tartrate, 32 mg.; water-soluble in ethylene glycol: Sodium bismuth citrate, 32 mg. (B) Water-soluble suspended in oil (Sodium potassium bismuth tartrate), 32, 48, and 64 mg. (C) Water-insoluble suspended in oil (Bismuth subsalicylate), 75 mg. (D) Oil solutions: Quiniobine (Quinine bismuth iodide dissolved in olive oil with lecithin, 60 mg.; Bismo-cymol (Bismuth camphocarboxylate), 100 mg.; Biliposol (Bismuth ethylmethylnonoate), 80 mg. *All doses refer to the bismuth content.*

General Conclusions: 1. The *resemblances* between these bismuth compounds appear more impressive than the differences; the salicylate stands apart, with a much slower but more persistent absorption and excretion. 2. The *excretion and absorption velocity* is in the order of: Watery solutions (A) > oil solutions (D) > tartrate oil (B) > salicylate oil (C). 3. The *peak excretion and the total (cumulative) excretion* (within 3 weeks) run fairly parallel in the general order:

Water-soluble (A) multiple \
Oil-sol. (B) " / oil solutions (D) \ tartrate oil (B) \
weekly / weekly /
oil solutions (D) \ water-soluble (A) \ tartrate oil (B) \
single / weekly / single /
water-soluble (A) \ salicylate oil (C)
single / single

4. The *percentage excretion* is nearly uniform for practically all, 15 to 25% within 3 weeks; it is much lower for salicylate-oil—2.9% (but here the excretion is very persistent, and longer after-period would give relatively higher percentage). The percentage excretion is materially above the average with single oil-solutions (D)—39 and 45%.

5. The *fecal excretion,* so far as studied, seems to be about a tenth of the urinary excretion and fairly parallel to it.

6517

Cell Injury by Antiseptics.

VICTOR A. BADERTSCHER. (Introduced by Torald Sollmann.)

From Western Reserve University School of Medicine.

Microscopic observation of the duration of the ciliary motion of the pharyngeal epithelium was utilized as an indicator of progressive injury to mucous membranes. The ciliary motion of infusorial cells (paramecia) was studied for comparison. The chart shows the median "effective dilutions"; namely, for the frog, the concentration required to stop within 20 to 40 minutes the ciliary motion

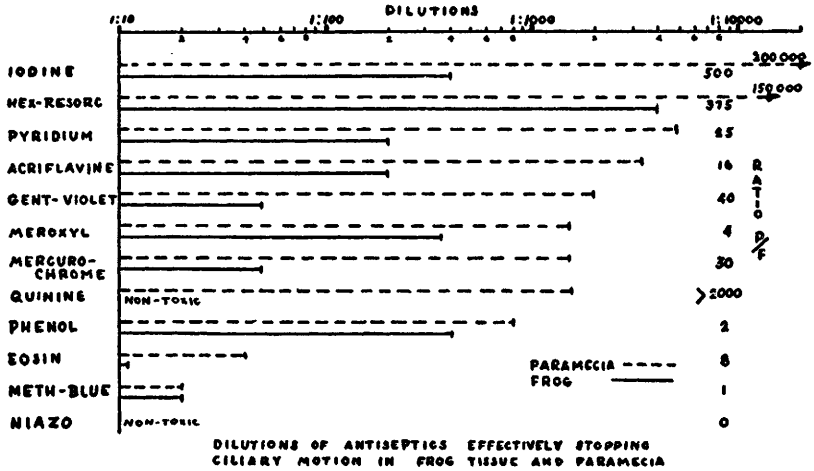

FIG. 1.